

Puzzled Over Properties?

Don't be puzzled by the properties of whole numbers any longer! Identify the property each problem represents and write it in the blank. Then solve the problem, write its answer in the blank, and color its matching puzzle piece. The first one has been done for you.

Properties of Whole Numbers

- **Commutative Property:** Numbers can be added or multiplied in any order without changing the sum or product. Examples: $8 + 19 = 19 + 8$ and $4 \times 36 = 36 \times 4$
- **Associative Property:** Addends or factors can be grouped differently. The sum or product is always the same. Examples: $(33 + 40) + 26 = 33 + (40 + 26)$ and $(12 \times 4) \times 2 = 12 \times (4 \times 2)$
- **Property of One:** The product of any factor and 1 is the factor.
Example: $47 \times 1 = 47$
- **Zero Property:** The sum of any number and 0 is that number. The product of any factor and 0 is 0. Examples: $72 + 0 = 72$ and $55 \times 0 = 0$
- **Distributive Property:** A factor can be written as the sum of two addends. Each addend can be multiplied by the other factor without changing the product.
Example: $3 \times (2 \times 7) = (3 \times 2) + (3 \times 7)$

	Property	Answer
1. $4 \times (5 + 3) = (4 \times 5) + (4 \times 3)$	<u>Distributive</u>	<u>32</u>
2. $11 \times 10 = 10 \times 11$	_____	_____
3. $2 \times 1 = 2$	_____	_____
4. $(6 \times 2) \times 3 = 6 \times (2 \times 3)$	_____	_____
5. $10 \times (11 + 6) = (10 \times 11) + (10 \times 6)$	_____	_____
6. $23 \times 0 = 0$	_____	_____
7. $1 \times 243 = 243$	_____	_____
8. $(2 \times 4) \times 3 = 2 \times (4 \times 3)$	_____	_____
9. $21 + 12 = 12 + 21$	_____	_____
10. $6 \times (2 \times 8) = (6 \times 2) \times 8$	_____	_____
11. $7 \times (3 + 7) = (7 \times 3) + (7 \times 7)$	_____	_____
12. $4 \times 7 = 7 \times 4$	_____	_____
13. $0 \times 15 = 0$	_____	_____
14. $(9 \times 3) + (9 \times 6) = 9 \times (3 + 6)$	_____	_____
15. $(2 + 5) + 4 = 2 + (5 + 4)$	_____	_____

Bonus Box: On the back of this page, use parentheses to show two different ways to solve the problem $8 + 7 + 3$.